

0.1 Definitions

We will be considering various minesweeper boards and configurations within them. Before proceeding we first define the following parameters and variables:

- N , total number of cells;
- K , total number of mines;
- n , remaining number of clickable cells;
- k , remaining number of mines to be found;
- $\rho = k/n$, density of mines;
- $\rho_0 = K/N$, initial density of mines;
- x_{\max} , maximum number of mines in a cell.

The parameter values at the start of a game for the standard difficulties are given in [Table 1](#).

Difficulty	Dimensions	N	K	ρ_0
Beginner (b)	8×8	64	10	0.156
Intermediate (i)	16×16	256	40	0.156
Expert (e)	16×30	480	99	0.206
Master (m)	30×16	900	200	0.222

Table 1: Characteristics of standard games.